

## Karthik Sridharan

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<b>Contact Information</b>	450 Jon M. Huntsman Hall 3730 Walnut Street, Philadelphia, PA 19104 USA	<i>Mobile:</i> +1-716-550-2561 <i>E-mail:</i> <a href="mailto:karthik.sridharan@gmail.com">karthik.sridharan@gmail.com</a> <a href="http://ttic.uchicago.edu/~karthik/">http://ttic.uchicago.edu/~karthik/</a>
<b>Research Interests</b>	Machine Learning, Statistical Learning Theory, Online Learning and Decision Making, Optimization, Empirical Process Theory, Concentration Inequalities, Game Theory	
<b>Education</b>	<p><b>Ph.D.</b>, Computer Science, Sep 2006 - Oct 2011</p> <ul style="list-style-type: none"><li>• Institute : <a href="#">Toyota Technological Institute at Chicago</a></li><li>• Advisor: <a href="#">Nathan Srebro</a></li><li>• Area of Study: Theoretical Machine Learning</li></ul> <p><b>M.S.</b>, Computer Science, Aug 2004 - Jun 2006</p> <ul style="list-style-type: none"><li>• Institute : University at Buffalo, State University of New York</li><li>• Advisor: Venu Govindaraju</li><li>• Area of Study: Biomtrics/Applied Machine Learning</li></ul> <p><b>B.E.</b>, Computer Science and Engineering, Aug 2000 - Jun 2004</p> <ul style="list-style-type: none"><li>• Institute : M.S. Ramaiah Institute of Technology, Bangalore, India</li></ul>	
<b>Work Experience</b>	<p><b>Assistant Professor, (current)</b></p> <ul style="list-style-type: none"><li>• Department : Computer Science</li><li>• Institute : Cornell University</li></ul> <p><b>Postdoctoral Research Scholar</b>, (Nov 2011 to 2014)</p> <ul style="list-style-type: none"><li>• Institute : Department of Statistics, University of Pennsylvania</li><li>• Supervisor : Prof. Alexander Rakhlin , co-supervisor : Prof. Michael Kearns</li></ul> <p><b>Internship</b>, Summer'09</p> <ul style="list-style-type: none"><li>• Institute : Microsoft Research, Redmond</li><li>• Mentor : Ofer Dekel</li><li>• Projects : Robust selective sampling from single and multiple teachers</li></ul> <p><b>Research Assistant</b>, Sep 2004 - Jun 2006</p> <ul style="list-style-type: none"><li>• Institute : Center for Unified Biometrics and Sensors, SUNY Buffalo</li><li>• Mentor : Venu Govindaraju</li><li>• Projects : Semantic Face Retrieval, Facial Expression Recognition and Analysis</li></ul>	
<b>Teaching Experience</b>	<p><b>Co-Taught with Prof. Alexander Rakhlin</b>, Spring 2012</p> <ul style="list-style-type: none"><li>• Course : Statistical Learning Theory and Sequential Prediction</li><li>• Institute : University of Pennsylvania</li></ul> <p><b>Teaching Assistant</b>, Winter 2011</p> <ul style="list-style-type: none"><li>• Course : Computational and Statistical Learning Theory</li><li>• Instructor : Nathan Srebro</li><li>• Institute : TTIC/ University of Chicago</li></ul> <p><b>Teaching Assistant</b>, Spring 2010</p> <ul style="list-style-type: none"><li>• Course : Convex Optimization</li><li>• Instructor : Nathan Srebro</li><li>• Institute : TTIC/ University of Chicago</li></ul>	

## Publications

### Journals :

1. **Sequential Complexities and Uniform Martingale Laws of Large Numbers**  
Alexander Rakhlin, Karthik Sridharan, Ambuj Tewari  
Probability Theory and Related Fields, 2014, to appear.
2. **Selective Sampling and Active Learning from Single and Multiple Teachers**  
Ofer Dekel, Claudio Gentile, Karthik Sridharan  
Journal of Machine Learning Research (JMLR), 2012
3. **Learning Kernel Based Half-spaces with the 0-1 Loss**  
Shai Shalev-Shwartz, Ohad Shamir, Karthik Sridharan  
SIAM Journal of Computing, 2011
4. **Learnability, Stability and Uniform Convergence**  
Shai Shalev-Shwartz, Ohad Shamir, Nathan Srebro, Karthik Sridharan  
Journal of Machine Learning Research (JMLR), 2010.
5. **A Neural Network based CBIR System using STI Features and Relevance Feedback**  
K.G. Srinivasa, Karthik Sridharan, P. D. Shenoy, Venugopal K.R., L.M. Patnaik  
International Journal on Intelligent Data Analysis, Volume 10, Number 2, 2006.

### Journals in Submission :

6. **Empirical Entropy, Minimax Regret and Minimax Risk**  
Alexander Rakhlin, Karthik Sridharan, Alexandre Tsybakov  
Bernoulli Journal, 2014.

### Conferences :

7. **Online Non-parametric Regression**  
Alexander Rakhlin, Karthik Sridharan  
Conference on Learning Theory (COLT), 2014
8. **On Semi-Probabilistic Universal Prediction**  
Alexander Rakhlin, Karthik Sridharan  
Proceedings of IEEE Information Theory Workshop, 2013. Invited paper
9. **Optimization, Learning, and Games with Predictable Sequences**  
Alexander Rakhlin, Karthik Sridharan  
Neural Information Processing Systems (NIPS) 2013.
10. **Competing With Strategies**  
Wei Han, Alexander Rakhlin, Karthik Sridharan  
Conference on Learning Theory (COLT) 2013.
11. **Online Learning With Predictable Sequences**  
Alexander Rakhlin, Karthik Sridharan  
Conference on Learning Theory (COLT) 2013.
12. **Localization and Adaptation in Online Learning**  
Alexander Rakhlin, Ohad Shamir, Karthik Sridharan  
Artificial Intelligence and Statistics (AISTATS) 2013 (*full oral presentation*).

13. **Relax and Randomize : From Value to Algorithms**  
Alexander Rakhlin, Ohad Shamir, Karthik Sridharan  
Neural Information Processing Systems (NIPS) 2012 (*full oral presentation*).
14. **Making Stochastic Gradient Descent Optimal for Strongly Convex Problems**  
Alexander Rakhlin, Ohad Shamir, Karthik Sridharan  
International Conference on Machine Learning (ICML), 2012
15. **Minimizing The Misclassification Error Rate Using a Surrogate Convex Loss**  
Shai Ben-David, David Loker, Nathan Srebro, Karthik Sridharan  
International Conference on Machine Learning (ICML), 2012
16. **On the Universality of Online Mirror Descent**  
Nathan Srebro, Karthik Sridharan, Ambuj Tewari  
Neural Information Processing Systems (NIPS), 2011
17. **Better Mini-Batch Algorithms via Accelerated Gradient Methods**  
Andrew Cotter, Ohad Shamir, Nathan Srebro, Karthik Sridharan  
Neural Information Processing Systems (NIPS), 2011
18. **Online Learning: Stochastic and Constrained Adversaries**  
Alexander Rakhlin, Karthik Sridharan, Ambuj Tewari  
Neural Information Processing Systems (NIPS), 2011
19. **Online Learning: Beyond Regret**  
Alexander Rakhlin, Karthik Sridharan, Ambuj Tewari  
Conference on Learning Theory (COLT) 2011 (*Best paper award*).
20. **Complexity-based Approach to Calibration with Checking Rules**  
Dean Foster, Alexander Rakhlin, Karthik Sridharan, Ambuj Tewari  
Conference on Learning Theory (COLT) 2011.
21. **Online Learning: Random Averages, Combinatorial Parameters and Learnability**  
Alexander Rakhlin, Karthik Sridharan, Ambuj Tewari  
Neural Information Processing Systems (NIPS) 2010 (*full oral presentation*).
22. **Smoothness, Low Noise and Fast Rates**  
Nathan Srebro, Karthik Sridharan, Ambuj Tewari  
Neural Information Processing Systems (NIPS) 2010.
23. **Learning Kernel-Based Halfspaces with the Zero-One Loss**  
Shai Shalev-Shwartz, Ohad Shamir, Karthik Sridharan  
Conference on Learning Theory (COLT), 2010 (*Best paper award*).
24. **Robust Selective Sampling from Single and Multiple Teachers**  
Ofer Dekel, Claudio Gentile, Karthik Sridharan  
Conference on Learning Theory (COLT), 2010
25. **Convex Games in Banach Spaces**  
Karthik Sridharan, Ambuj Tewari  
Conference on Learning Theory (COLT), 2010
26. **Learning exponential families in high-dimensions: Strong convexity and sparsity**  
Sham Kakade, Ohad Shamir, Karthik Sridharan, Ambuj Tewari  
International Conference on Artificial Intelligence and Statistics (AISTATS), 2010

27. **Learnability and Stability in the General Learning Setting**  
Shai Shalev-Shwartz, Ohad Shamir, Nathan Srebro, Karthik Sridharan  
Conference on Learning Theory (COLT), 2009
28. **Stochastic Convex Optimization**  
Shai Shalev-Shwartz, Ohad Shamir, Nathan Srebro, Karthik Sridharan  
Conference on Learning Theory (COLT), 2009
29. **The Complexity of Improperly Learning Large Margin Halfspaces**  
Shai Shalev-Shwartz, Ohad Shamir, Karthik Sridharan  
Open Problems, Conference on Learning Theory (COLT), 2009
30. **Multi-View Clustering via Canonical Correlation Analysis**  
Kamalika Chaudhuri, Sham Kakade, Karen Livescue, Karthik Sridharan  
International Conference on Machine Learning (ICML), 2009
31. **On the Complexity of Linear Prediction: Risk Bounds, Margin Bounds and Regularization**  
Sham Kakade, Karthik Sridharan, Ambuj Tewari  
Neural Information Processing Systems (NIPS), 2008
32. **Fast Rates for Regularized Objectives**  
Shai Shalev-Shwartz, Nathan Srebro, Karthik Sridharan  
Neural Information Processing Systems (NIPS), 2008
33. **Information Theoretic Framework for Multi-view Learning**  
Karthik Sridharan, Sham Kakade  
Conference on Learning Theory (COLT), 2008
34. **Competitive Mixtures of Simple Neurons**  
Karthik Sridharan, Matthew J Beal, Venu Govindaraju  
International Conference on Pattern Recognition (ICPR), 2006
35. **Identifying handwritten text in mixed documents**  
Faisal Farooq, Karthik Sridharan, Venu Govindaraju  
International Conference on Pattern Recognition (ICPR), 2006
36. **Classification of Machine Print and Handwritten Arabic Documents**  
Karthik Sridharan, Faisal Farooq, Venu Govindaraju  
Symposium on Document Image Understanding Technology (SDIUT), 2005
37. **A Sampling Based Approach to Facial Feature Extraction**  
Karthik Sridharan, Venu Govindaraju  
IEEE Automatic Identification Advanced Technologies (AUTOID), 2005  
(*Best paper award, 2nd prize*)
38. **A Probabilistic Approach to Semantic Face Retrieval**  
Karthik Sridharan, Sankalp Nayak, Sharat Chikkerur, Venu Govindaraju  
Audio and Video-based Biometric Person Authentication (AVBPA), 2005
39. **A Dynamic Migration Model for Self-adaptive Genetic Algorithms**  
K.G. Srinivasa, Karthik Sridharan, P. D. Shenoy, Venugopal K.R., L.M. Patnaik  
International Conference on Intelligent Data Engineering and Automated Learning, 2004
40. **An Effective Content-Based Image Retrieval System Using STI features and Relevance feedback**  
K.G. Srinivasa, Karthik Sridharan, P. D. Shenoy, Venugopal K.R., L.M. Patnaik  
International Conference on Knowledge Based Computer Systems (KBCS), 2004

41. **EASOM: An Efficient Soft Computing Method for Predicting the Share Values**  
K.G. Srinivasa, Karthik Sridharan, P. D. Shenoy, Venugopal K.R., L.M. Patnaik  
International Conference on Artificial Intelligence and Applications (AIA), 2004

**Theses :**

42. **Learning From an Optimization Viewpoint**  
Karthik Sridharan, Ph.D. Thesis  
Advisor : Nathan Srebro  
Committee : David McAllester, Arkadi Nemirovski, Alexander Razborov, Nati Srebro  
Toyota Technological Institute, Chicago, 2011
43. **Semantic Face Retrieval**  
Karthik Sridharan, Master's Thesis  
Advisor : Venu Govindaraju  
Computer Science, SUNY Buffalo, 2006

**Lecture Notes :**

44. **Statistical Learning Theory and Sequential Prediction**  
Alexander Rakhlin, Karthik Sridharan  
Stat298, University of Pennsylvania

**Refereeing**

**Conference Refereeing :** NIPS, ICML, COLT, AISTATS

**Journal Refereeing :** Journal of Machine Learning Research, Machine Learning, Pattern Recognition Letters, IEEE Transactions on Information Theory

**Awards**

**Best Paper Award** - Conference on Learning Theory (COLT), 2011

**Best Paper Award** - Conference on Learning Theory (COLT), 2010

**Best Paper Award (Second Prize)** - IEEE Automatic Identification Advanced Technologies (AutoID), 2005

**Young IT Professional Award**, South Regional, Computer Society of India, 2003

**Technical Skills**

C/C++, Java, Matlab